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NEW RECORDS OF TIGER BEETLES (COLEOPTERA, CARABIDAE: CICINDELINAE) FROM CAMBODIA

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Summary. Four species of tiger beetles are recorded from Cambodia for the first time: *Naviauxella labiosa* Naviaux, 1996, *Cylinderina (Ifasina) viridilabris* (Chaudoir, 1852), *Cylinderina (Eugrapha) biprolongata* (W. Horn, 1924) and *Cylinderina (Eugrapha) mutata* (Fleutiaux, 1893). *Tricondyla* (s. str.) *annulicornis* Schmidt-Goebel, 1846, *Calomera angulata angulata* (Fabricius, 1798) and *Calomera funerea funerea* (MacLeay, 1825) are reported for the first time from the Cambodian provinces Kampot, Preah Sihanouk and Pursat, respectively. Morphological features of the holotype of *Tricondyla* (s. str.) *cyanipes kambodshensis* Mandl, 1970 are illustrated for the first time and its synonymy under *Tricondyla* (s. str.) *stricticeps* Chaudoir, 1864 is confirmed.

Key words: Cicindelinae, tiger beetles, new records, Cambodia, Southeast Asia.

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Резюме. Четыре вида жуков-скакунов впервые отмечены для фауны Камбоджи: *Naviauxella labiosa* Naviaux, 1996, *Cylinderina (Ifasina) viridilabris* (Chaudoir, 1852), *Cylinderina (Eugrapha) biprolongata* (W. Horn, 1924) и *Cylinderina (Eugrapha) mutata* (Fleutiaux, 1893). *Tricondyla* (s. str.) *annulicornis* Schmidt-Goebel, 1846 впервые указывается для провинции Кампот, *Calomera angulata angulata* (Fabricius, 1798) – для провинции Сиануквиль, а *Calomera funerea funereal* (MacLeay, 1825) – для провинции Пуосат. Впервые иллюстрируются морфологические признаки голотипа *Tricondyla* (s. str.) *cyanipes kambodshensis* Mandl, 1970 и подтверждается его синонимия с *Tricondyla* (s. str.) *stricticeps* Chaudoir, 1864.

INTRODUCTION

The fauna of tiger beetles of Southeast Asia is one of the richest in the World and contains more than 530 species (Cassola & Pearson, 2000). However, our knowledge of the faunas of some territories or countries remains incomplete. Thus, 177, 143 and 132 tiger beetle species or subspecies have been found in Vietnam (Wiesner *et al.*, 2017), Laos (Wiesner & Geiser, 2016) and Thailand (Naviaux & Pinratana, 2004), respectively, versus some 52 species or subspecies known from Cambodia those countries surround (Cassola, 2005; Wiesner, 2008,

2013, 2014, 2017, 2018). Therefore, any additional records from Cambodia are highly interesting and important.

Curiously enough, the first checklist of the tiger beetles of Cambodia which included 44 species or subspecies appeared only 13 years ago (Cassola, 2005). Subsequently, this number slightly increased to reach 50 species (Wiesner, 2008, 2013, 2014, 2017, 2018), two of which are represented by one subspecies each. However, only 31 species among them have been recorded from exact localities, while the “*distribution unknown*” concerns the remaining 19 (Wiesner, 2018).

Based mainly on unpublished material, the present paper sheds new light on the distribution of some species of tiger beetles in Cambodia. The specimens studied are kept in the following museum or private collections: CMNH – Carnegie Museum of Natural History, Pittsburgh, USA; ELKU – Entomological Laboratory of Kyushu University (Dr. M. Chujo's Coleoptera Type Collection), Fukuoka, Japan; MPU – Moscow State Pedagogical University, Moscow, Russia; cSCh – Sergey Churkin, Reutov, Moscow Area, Russia; cSS – Sergey Saluk, Minsk, Belarusia.

LIST OF THE SPECIES

Tricondyla (s. str.) *annulicornis* Schmidt-Goebel, 1846

MATERIAL EXAMINED. **Cambodia:** Kampot Province, Dâmrei (= *Elephant*) Mountains, SE slope of Phnom Bokor Mnt., VII–VIII.1999, 1♀, leg. O. Shumakov (cSCh).

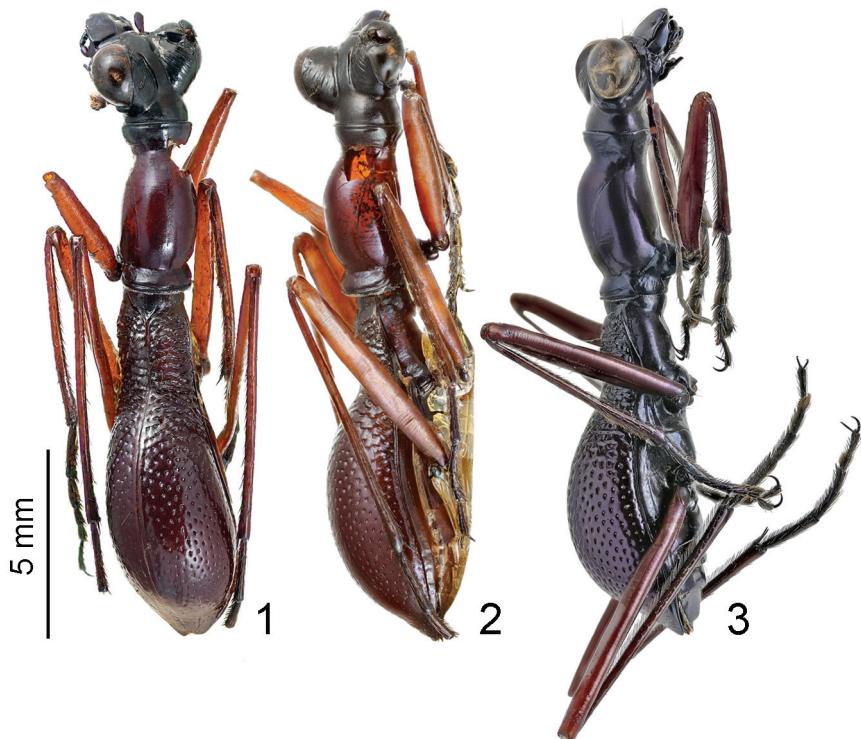
NOTES. This species has hitherto been known from Myanmar: without exact locality (Sawada & Wiesner, 2000; Wiesner, 2004), Thailand: Chanthaburi, Kanchanaburi, Lampang, Nahkon Ratchasima and Tak provinces (Naviaux, 1991; Naviaux & Pinratana, 2004), Laos: Borikhamxay, Khammuane, Luangnamtha, Luangprabang, Savannakhet and Vientiane provinces (Wiesner & Geiser, 2016), Cambodia: Koh Kong (Wiesner, 2018), Vietnam: Ba Ria-Vung Tau, Binh Phuoc and Tay Ninh provinces (Wiesner *et al.*, 2017) and Malaysia (Malacca): Kelantan and Pahang states (Wiesner, 2007; 2016). Sawada and Wiesner (1999a), as well as Cassola (2005) had listed *T. annulicornis* in Cambodia, albeit without exact locality, until Wiesner (2008, 2014) excluded it from the Cambodian fauna. However, recently *T. (s. str.) annulicornis* was found in Cambodia (Wiesner, 2018). Thus, our data is confirmed the second reliably record of this species in Cambodia, and its first record in Kampot province.

Tricondyla (s. str.) *stricticeps* Chaudoir, 1864

Figs 1–5

MATERIAL EXAMINED. **Cambodia:** Cheko, 6.II 1965, leg. K. Yoshikawa (digital pictures of the holotype of *Tricondyla cyanipes kambodshensis* Mandl, 1970, ♀ — ELKU).

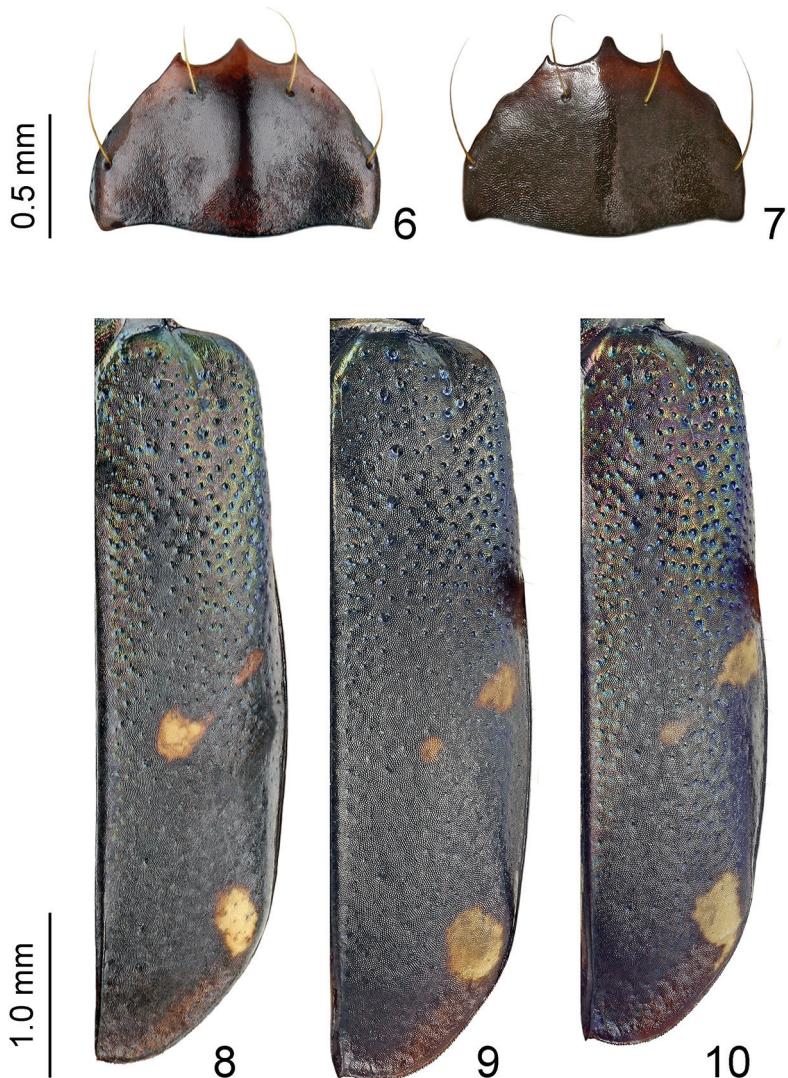
NOTES. *Tricondyla cyanipes kambodshensis* was described from a single female (Mandl, 1970: 57). Naviaux (2002) considered it as a synonym of *Tricondyla stricticeps* Chaudoir, 1864 (Figs 3, 5). However, he had not revised the type and his opinion was based only on the original description by Mandl (Naviaux, 2002: 37). Having studied some digital pictures of the holotype of *T. cyanipes kambodshensis* (Figs 1, 2, 4), kindly sent to me by Dr. Toshiharu Mita, the opinion of Naviaux is confirmed. Yet all checklists of Cambodian tiger beetles refer to *T. stricticeps* as a species which comes from neither an exact locality nor even a definite province (Cassola, 2005; Wiesner, 2008, 2014). Meanwhile the village (phum in Cambodian) Cheko is situated in the Botum Sakor District of the Koh Kong Province.



Figs 1–5. *Tricondyla* (s. str.) species: 1, 2, 4 – *T. cyanipes kambodshensis*, holotype, female (ELKU, photos by Toshiharu Mita); 3, 5 – *T. stricticeps*, male (Vietnam); 1–3 – habitus; 4, 5 – head; 1, 4, 5 – dorsal view; 2, 3 – right lateral view.

Naviauxella labiosa Naviaux, 1996
Figs 6–10

MATERIAL EXAMINED. Cambodia: Ratanakiri Province, environs of Banlung (= Boung Long), Yeak Laom Lake, h~180 m, 13°43'22.5"N 107°00'55.2"E, 22.V 2014, 2♀, leg. I. Melnik (MPU).



Figs 6–10. *Naviauxella labiosa*, females: 6, 7 – labrum; 8–10 – right elytron; 6, 8 – holotype (CMNH, photos by Peter Schüle); 7, 9, 10 – specimens from Cambodia.

NOTES. This Vietnamese ex-endemic was originally described from a single female (Naviaux, 1996), followed by a record of another female from not very far from the type locality (Matalin, 2002). From all similar species, *N. labiosa* differs well by the shape and colour of the labrum (Figs 6–7) and elytral pattern (Figs 8–10). The lateral portion of the median band in the holotype is reduced (Fig. 8), but Naviaux (1996: 69) considers this as a case of individual variability. In the second female known from Vietnam, the lateral portion of the median band is dramatically reduced (see Matalin, 2002: fig. 2), while in both Cambodian females the lateral portion is larger than the apical one (Figs 9–10). The total length (without labrum) of the Cambodian specimens varies from 7.4 mm to 7.8 mm (vs. 7.8 mm in the holotype). Until now, *N. labiosa* has been known only from the Dak Lak Province of Vietnam (Wiesner *et al.*, 2017), thus being new to the fauna of Cambodia. The new locality extends the distribution area considerably to the west. Unfortunately, the male of this species is still unknown.

Cylindera (Ifasina) viridilabris (Chaudoir, 1852)

MATERIAL EXAMINED. **Cambodia:** Ratanakiri Province, environs of Banlung (= *Boung Long*), Cha Ung Waterfall, h~197 m, at light, 13°45'31.6"N 106°55'35.9"E, 24.V 2014, 1♀, leg. I. Melnik (MPU).

NOTES. At present, this species is reliably known to occur in Pakistan: Northwest Frontier Province and Kashmir State (Rafi *et al.*, 2010), Nepal: Western, Central and Eastern Development Regions (Probst, 1996), India: Haryana, Punjab, Himachal Pradesh, Uttar Pradesh, Madhya Pradesh, Orissa and Bihar states (Acciavatti & Pearson, 1989), Bangladesh (Chaudhry *et al.*, 1966) and Thailand: Sakhon Nakhon and Chiang Rai provinces (Naviaux, 1991; Naviaux & Pinratana, 2004; Matalin, 2015). Well distinguished from both particularly similar *C. (I.) somnuki* Naviaux, 1991 and *C. (I.) fallaciosa* (W. Horn, 1897) by the white elytral pattern, as well as the shape of the labrum and aedeagus (see Naviaux, 1991: figs 122–130; Naviaux & Pinratana, 2004: plate 23, figs 4–12). *C. (I.) viridilabis* is recorded from Cambodia for the first time.

Cylindera (Eugrapha) biprolongata (W. Horn, 1924)

Figs 11, 13, 15

MATERIAL EXAMINED. **Cambodia:** Stung Treng Province, near Anlung Chheuteal, island on Mekong River, sandy bank, 2.XII 2017, 1♂, 1♀, leg. A. Kompantsev (MPU).

NOTES. This species is definitely known from northeastern Thailand: Loei and Nakhon Phanom provinces (Naviaux, 1991; Naviaux & Pinratana, 2004), northern, northwestern and central Laos: Borikhamxay, Phongsaly and Vientiane provinces (Wiesner, 1999; Wiesner & Geiser, 2016), and southern China: Yunnan Province (Matalin, 2002; Shook & Wu, 2007). According to Naviaux (Naviaux, 1991; Naviaux & Pinratana, 2004), *C. (E.) biprolongata* is very abundant in Thailand in riparian habitats of the Mekong river valley. Thus, the first discovery of this species on the opposite, Cambodian bank of Mekong River is hardly surprising. Interestingly, Rivalier (1961) recorded *Cylindera (Eugrapha) venosa* (Kollar, 1836) from Cambodia, a species distributed in Pakistan, Nepal, India, Bangladesh and Myanmar (Acciavatti & Pearson, 1989; Wiesner, 1992). However, this species has been found in neither Thailand (Naviaux, 1991; Naviaux & Pinratana, 2004) nor Laos (Wiesner & Geiser, 2016). Therefore, it is *C. (E.) biprolongata*, not *C. (E.) venosa*, that seems to occur in Cambodia. Both *C. (E.) venosa* and *C. (E.) biprolongata* show a similar white elytral pattern, both differ well from each other (Figs 13–14; see also Horn, 1938: Taf. 51, figs 13–14 and Matalin, 2002: figs 9–10). Moreover, these species are easy to recognize by the shape of the

labrum (see Matalin, 2002: figs 7–8), the number of setae in the penicillus on male antennomere 4 (Figs 11–12), as well as the size and shape of the aedeagus (Figs 15–16). The new record greatly expands the known distribution area of *C. (E.) biprolongata* to the south.



Figs 11–16. *Cylinderera (Eugrapha)* species, males: 11, 13, 15 – *C. (E.) biprolongata*; 12, 14, 16 – *C. (E.) venosa*; 11, 12 – antennomeres 2–4; 13, 14 – right elytron; 15, 16 – aedeagus, left lateral view.

***Cylinderera (Eugrapha) mutata* (Fleutiaux, 1893)**

MATERIAL EXAMINED. **Cambodia:** Stung Treng Province, near Anlung Chheuteal, island on Mekong River, sandy bank, 2.XII 2017, 1♀, leg. A. Kompantsev (MPU).

NOTES. This species is distributed in eastern Myanmar: Shan State (Wiesner, 2006), northeastern Thailand: Chiang Mai, Loei, Mukdahan, Nakhon Phanom and Ubon Ratchathani provinces (Naviaux, 1991; Naviaux & Pinratana, 2004; Matalin, 2015), northern and central Laos: Borikhamxay, Houaphanh, Khammuane, Luangprabang, Oudomxay, Phongsaly and Xayabury provinces (Wiesner & Geiser, 2016), northern and northeastern Vietnam: Bac Kan and Thanh Hoa provinces (Wiesner *et al.*, 2017), and southern China: Yunnan Province (Shook & Wu, 2007). Although *C. (E.) mutata* is one of the most common species living on the banks of Mekong River, it is recorded from Cambodia for the first time. The new record considerably extends the known distribution range of *C. (E.) mutata* to the south.

***Calomera angulata angulata* (Fabricius, 1798)**

MATERIAL EXAMINED. **Cambodia:** Preah Sihanouk Province, environs of Sihanoukville., h~20 m, 23–24.IX 1999, 1♂, leg. M. & S. Murzin (cSS).

NOTES. Until now, this subspecies, one of the most common in Asia, has been known in Cambodia only from the Ratanakiri Province (Wiesner, 2008, 2014), being recorded from the Preah Sihanouk Province for the first time.

***Calomera funerea funerea* (MacLeay, 1825)**

MATERIAL EXAMINED. **Cambodia:** Pursat Province, 15 km SE of Tuol Kruos, h~100 m, 20-28 XII.1999, 1♂, leg. M. & S. Murzin (cSS).

NOTES. This widespread Asian subspecies ranges from eastern India in the west to Hainan and Sunda islands in the east (Wiesner, 1992). Until now, in Cambodia the nominate subspecies has been found only in the Ratanakiri Province (Wiesner, 2008, 2014), thus being recorded from the Pursat Province for the first time.

As a result, given the above new records, the Cambodian tiger beetle list contains 52 species, including two species that are represented by one subspecies each; 31 of them are associated with exact localities.

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